

REMARKS

The Examiner has objected to the terms “automatic” and “automatically”. Although these terms are not specifically used in the detailed description, it is quite clear that the elements that are referred to are performed automatically. None the disclosed enhancement algorithms (e.g., exposure adjustment, tone scale adjustment, color adjustment, sharpening, noise reduction, and red-eye correction) include any steps requiring user intervention, nor do they call for any user intervention, and they are therefore automatic. Such algorithms generally work by analyzing the image and automatically determining the adjustments that should be made to improve the quality of the image. Clearly one skilled in the art would recognize that there is no user intervention in the claimed automatic enhancement algorithm nor in its application.

Claims 1-4, 6-19, and 21-27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gruzdev (US Pub. No. 20030002095) in view of Higgins et al. (US Pat. No. 5835627). Claims 5 and 20 were rejected as unpatentable over Gruzdev (US Pub. No. 20030002095) in view of Higgins et al. (US Pat. No. 5835627) further in view of Capitani (US Pat. No. 5,321,500)

There are two independent claims in this case—claims 1 and claim 16. In claim 1, the input color space of an input digital image is identified, and a color space transform is applied to the input digital image to form a corresponding digital image in a reference color space. Elements a) and b) in both claims 1 and 16 are the same. As will be pointed out in more detail, none of the cited references adjust algorithm parameters for an automatic image enhancement algorithm in response to an identified input color space. In claim 16 a version of the automatic image enhancement algorithm is selected in accordance with the identified input color space. This feature is not shown or suggested by the cited references.

Gruzdev et al. disclose a system for manually adjusting the color of an image. In paragraph [0020] of Gruzdev et al., input images may be represented by different color spaces. The method of Gruzdev et al. relies on having the image in a color space with appropriate lightness, hue and chroma attributes. Therefore, if the input image is not in an appropriate color space, they will apply a color transform to get it into such a color space [0026]. A series of user-specified adjustments are then applied to the image to provide a modified image. The

adjustments may include lightness, hue and chroma adjustments, but in each case the adjustments are user-specified, and are not determined by applying an automatic algorithm to automatically determine the adjustments based on the image content.

The Examiner is heavily relying on paragraph [0043] of Gruzdev et al., more particularly citing the language “extrapolate a replacing color on the basis of these two colors ... such an extrapolation may take several forms, in particular to adjust to the fact that colors in the reference color space may not lie within the gamut of possible colors represented by the original color space of the image data.”

Applicants have had some difficulty interpreting what is meant by this paragraph. We believe the most reasonable interpretation is that the reference color space includes color coordinates, which are outside the original color space. This is not a problem in the practice of the present invention, because we allow image colors in the reference color space that are outside the gamut of the original color space. Presumably, Gruzdev et al. are saying is in their situation, if a image color in the reference color space appears that is outside the gamut of the original color space, it must be mapped, with a standard gamut mapping strategy, back inside the gamut of the original color space. Gruzdev does not mention how to perform this mapping, but says the operator must “adjust to the fact” that this gamut problem may exist. This adjustment suggested by Gruzdev et al. with no disclosure will not enhance the color image, but is a gamut mapping/ gamut extrapolation problem. There is no disclosure in Gruzdev et al. of an image enhancement algorithm that has one or more parameters having values that are adjusted in response to the input color space. The very fact that Gruzdev et al. have a problem with creating colors outside the input color space gamut shows that they are not adjusting parameters based on the gamut of the input color space. Applicant’s disclosure sets forth in detail how image enhancement parameters are adjusted in accordance with the input color space of the image. There is no way that one skilled in the art, given the few broad sentences in Gruzdev et al. would in any way recognize that the parameters in an image enhancement algorithm should be adjusted depending on the input color space of the original digital image.

There is no motivation in Gruzdev et al. for adjusting parameters of an image enhancement algorithm, or selecting a version of an automatic algorithm, in response to an identified input color space. Furthermore, neither Gruzdev et al., Higgins et al. nor Capatant et al. teach the modification of parameters for an image enhancement algorithm based on an identified input color space. An advantage of the claimed arrangement is that improved results can be obtained for input digital images in different input color spaces, while maintaining the desirable features of using a common reference color space.

Claims 1 and 16 are believed to define unobvious subject matter. The remaining claims are dependent on either claim 1 or claim 16, and should be allowed along with their corresponding independent claims.

Claims 5 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gruzdev (US Pub. No. 20030002095) in view of Higgins et al. (US Pat. No. 5835627) and further in view of Capitant (US Pat. No. 5321500).

Gruzdev and Higgins have been discussed above. Capitant et al. does a reverse sensitometry function, but does not disclose, suggest or provide any motivation for adjustments to such algorithm based upon the color space of the original image. Therefore, claims 5 and 20 should also be allowed along with claims 1 and 16.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested. If the Examiner has any problems or difficulties with this

response, Applicant's attorney would appreciate a telephone call. We are willing to set up an interview which would include the inventors, Applicant's attorney, and the Examiner.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'R. L. Owens', written over a horizontal line.

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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.